

Applicant : Vincent P. Stanton, Jr.
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(l) nucleotide 5573 wherein X is T;
(m) nucleotide 5659 wherein X is C;
(n) nucleotide 5678 wherein X is C;
(o) nucleotide 5874 wherein X is T; and
(p) nucleotide 5934 wherein X is G
or the complement thereof.

A1
~~18~~¹⁷ The isolated nucleic acid probe of claim ~~18~~¹⁷ comprising at least two of:

- (a) nucleotide 194 wherein X is G;
- (b) nucleotide 294 wherein X is T;
- (c) nucleotide 1136 wherein X is A;
- (d) nucleotide 1252 wherein X is T;
- (e) nucleotide 1334 wherein X is A;
- (f) nucleotide 1699 wherein X is C;
- (g) nucleotide 3150 wherein X is G;
- (h) nucleotide 3207 wherein X is T;
- (i) nucleotide 3209 wherein X is A;
- (j) nucleotide 5444 wherein X is C;
- (k) nucleotide 5551 wherein X is A;
- (l) nucleotide 5573 wherein X is T;
- (m) nucleotide 5659 wherein X is C;
- (n) nucleotide 5678 wherein X is C;
- (o) nucleotide 5874 wherein X is T; and
- (p) nucleotide 5934 wherein X is G

or the complement thereof.

~~19~~¹⁷ The probe of claim ~~19~~¹⁷ comprising no more than 500 contiguous nucleotides of SEQ ID NO:1.

~~20~~¹⁷ The probe of claim ~~20~~¹⁷ comprising no more than 200 contiguous nucleotides of SEQ ID NO:1.

~~21~~¹⁷ The probe of claim ~~21~~¹⁷ comprising no more than 100 contiguous nucleotides of SEQ ID NO:1.

~~22~~¹⁷ The probe of claim ~~22~~¹⁷ comprising no more than 50 contiguous nucleotides of SEQ ID NO:1.

~~23~~¹⁷ The probe of claim ~~23~~¹⁷ comprising DNA.

~~24~~¹⁷ The probe of claim ~~24~~¹⁷ comprising a peptide nucleic acid.

~~25~~¹⁷ The probe of claim ~~25~~¹⁷ further comprising a detectable label.

~~10.~~²⁶ The probe of claim ~~9~~²⁵ wherein the detectable label is a fluorescent label.

~~11.~~²⁷ A method comprising
(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:1, the probe comprising at least one of:
(i) nucleotide 194 wherein X is G;
(ii) nucleotide 294 wherein X is T;
(iii) nucleotide 1136 wherein X is A;
(iv) nucleotide 1252 wherein X is T;
(v) nucleotide 1334 wherein X is A;
(vi) nucleotide 1699 wherein X is C;
(vii) nucleotide 3150 wherein X is G;
(viii) nucleotide 3207 wherein X is T;
(ix) nucleotide 3209 wherein X is A;
(x) nucleotide 5444 wherein X is C;
(xi) nucleotide 5551 wherein X is A;
(xii) nucleotide 5573 wherein X is T;
(xiii) nucleotide 5659 wherein X is C;
(xiv) nucleotide 5678 wherein X is C;
(xv) nucleotide 5874 wherein X is T; and
(xvi) nucleotide 5934 wherein X is G
or the complement thereof; and
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~12.~~²⁸ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:2, the probe comprising at least one of:
(a) nucleotide 3434 wherein X is T;
(b) nucleotide 4313 wherein X is C;
(c) nucleotide 4799 wherein X is G;
(d) nucleotide 5255 wherein X is T;
(e) nucleotide 5455 wherein X is A;
(f) nucleotide 5507 wherein X is C;
(g) nucleotide 5810 wherein X is T;
(h) nucleotide 6128 wherein X is T;
(i) nucleotide 6626 wherein X is T;
(j) nucleotide 6686 wherein X is T;
or the complement thereof.

~~13.~~²⁹ The isolated nucleic acid probe of claim ~~12~~²⁸ comprising at least two of:
(a) nucleotide 3434 wherein X is T;

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- (b) nucleotide 4313 wherein X is C;
- (c) nucleotide 4799 wherein X is G;
- (d) nucleotide 5255 wherein X is T;
- (e) nucleotide 5455 wherein X is A;
- (f) nucleotide 5507 wherein X is C;
- (g) nucleotide 5810 wherein X is T;
- (h) nucleotide 6128 wherein X is T;
- (i) nucleotide 6626 wherein X is T;
- (j) nucleotide 6686 wherein X is T;

or the complement thereof.

~~14.30~~ The probe of claim ~~12~~²⁸ comprising no more than 500 contiguous nucleotides of SEQ ID NO:1.

~~15.31~~ The probe of claim ~~12~~²⁸ comprising no more than 200 contiguous nucleotides of SEQ ID NO:2.

~~16.32~~ The probe of claim ~~12~~²⁸ comprising no more than 100 contiguous nucleotides of SEQ ID NO:2.

~~17.33~~ The probe of claim ~~12~~²⁸ comprising no more than 50 contiguous nucleotides of SEQ ID NO:2.

~~18.34~~ The probe of claim ~~12~~²⁸ comprising DNA.

~~19.35~~ The probe of claim ~~12~~²⁸ comprising a peptide nucleic acid.

~~20.36~~ The probe of claim ~~12~~²⁸ further comprising a detectable label.

~~21.37~~ The probe of claim ~~20~~³⁶ wherein the detectable label is a fluorescent label.

~~22.38~~ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:2, the probe comprising at least one of:
 - (i) nucleotide 3434 wherein X is T;
 - (ii) nucleotide 4313 wherein X is C;
 - (iii) nucleotide 4799 wherein X is G;
 - (iv) nucleotide 5255 wherein X is T;
 - (v) nucleotide 5455 wherein X is A;
 - (vi) nucleotide 5507 wherein X is C;
 - (vii) nucleotide 5810 wherein X is T;
 - (viii) nucleotide 6128 wherein X is T;

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(ixi) nucleotide 6626 wherein X is T;
(x) nucleotide 6686 wherein X is T;
or the complement thereof; and
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~23.~~ ³⁹ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:3, the probe comprising at least one of:

- (a) nucleotide 166 wherein X is C;
(b) nucleotide 577 wherein X is G;
(c) nucleotide 638 wherein X is G;
(d) nucleotide 1708 wherein X is G;
(e) nucleotide 3432 wherein X is C;
(f) nucleotide 3682 wherein X is T;
(g) nucleotide 3730 wherein X is A;
(h) nucleotide 3925 wherein X is G;
(i) nucleotide 3937 wherein X is C;

or the complement thereof.

~~24.~~ ⁴⁰ The isolated nucleic acid probe of claim ~~23~~ ³⁹ comprising at least two of:

- (a) nucleotide 166 wherein X is C;
(b) nucleotide 577 wherein X is G;
(c) nucleotide 638 wherein X is G;
(d) nucleotide 1708 wherein X is G;
(e) nucleotide 3432 wherein X is C;
(f) nucleotide 3682 wherein X is T;
(g) nucleotide 3730 wherein X is A;
(h) nucleotide 3925 wherein X is G;
(i) nucleotide 3937 wherein X is C;

or the complement thereof.

~~25.~~ ⁴¹ The probe of claim ~~23~~ ³⁹ comprising no more than 500 contiguous nucleotides of SEQ ID NO:3.

~~26.~~ ⁴² The probe of claim ~~23~~ ³⁹ comprising no more than 200 contiguous nucleotides of SEQ ID NO:3.

~~27.~~ ⁴³ The probe of claim ~~23~~ ³⁹ comprising no more than 100 contiguous nucleotides of SEQ ID NO:3.

~~28.~~ ⁴⁴ The probe of claim ~~23~~ ³⁹ comprising no more than 50 contiguous nucleotides of SEQ ID NO:3.

~~29.~~ ⁴⁵ The probe of claim ~~23~~ ³⁹ comprising DNA.

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~~30.46~~³⁹ The probe of claim ~~23~~³⁹ comprising a peptide nucleic acid.

~~31.47~~³⁹ The probe of claim ~~23~~³⁹ further comprising a detectable label.

~~32.48~~⁴⁷ The probe of claim ~~31~~⁴⁷ wherein the detectable label is a fluorescent label.

~~33.49~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:3, the probe comprising at least one of:

(i) nucleotide 166 wherein X is C;

(ii) nucleotide 577 wherein X is G;

(iii) nucleotide 638 wherein X is G;

(iv) nucleotide 1708 wherein X is G;

(v) nucleotide 3432 wherein X is C;

(vi) nucleotide 3682 wherein X is T;

(vii) nucleotide 3730 wherein X is A;

(viii) nucleotide 3925 wherein X is G;

(ix) nucleotide 3937 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~34.50~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:4, the probe comprising at least one of:

(a) nucleotide 175 wherein X is A;

(b) nucleotide 341 wherein X is G;

(c) nucleotide 791 wherein X is T;

(d) nucleotide 1067 wherein X is A;

(e) nucleotide 1337 wherein X is A;

(f) nucleotide 1997 wherein X is C;

(g) G is inserted after nucleotide 2106;

(h) nucleotide 2582 wherein X is G;

(i) nucleotide 2617 wherein X is T;

(j) nucleotide 2652 wherein X is C;

or the complement thereof.

~~35.51~~⁵⁰ The isolated nucleic acid probe of claim ~~34~~⁵⁰ comprising at least two of:

(a) nucleotide 175 wherein X is A;

(b) nucleotide 341 wherein X is G;

(c) nucleotide 791 wherein X is T;

(d) nucleotide 1067 wherein X is A;

- (e) nucleotide 1337 wherein X is A;
- (f) nucleotide 1997 wherein X is C;
- (g) G is inserted after nucleotide 2100;
- (h) nucleotide 2582 wherein X is G;
- (i) nucleotide 2617 wherein X is T;
- (j) nucleotide 2652 wherein X is C;

or the complement thereof.

~~36.52~~ The probe of claim ~~34~~⁵⁰ comprising no more than 500 contiguous nucleotides of SEQ ID NO:4.

~~37.53~~ The probe of claim ~~34~~⁵⁰ comprising no more than 200 contiguous nucleotides of SEQ ID NO:4.

~~38.54~~ The probe of claim ~~34~~⁵⁰ comprising no more than 100 contiguous nucleotides of SEQ ID NO:4.

~~39.55~~ The probe of claim ~~34~~⁵⁰ comprising no more than 50 contiguous nucleotides of SEQ ID NO:4.

~~40.56~~ The probe of claim ~~34~~⁵⁰ comprising DNA.

~~41.57~~ The probe of claim ~~34~~⁵⁰ comprising a peptide nucleic acid.

~~42.58~~ The probe of claim ~~34~~⁵⁰ further comprising a detectable label.

~~43.59~~ The probe of claim ~~42~~⁵⁰ wherein the detectable label is a fluorescent label.

~~44.60~~ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:4, the probe comprising at least one of:

- (i) nucleotide 175 wherein X is A;
- (ii) nucleotide 341 wherein X is G;
- (iii) nucleotide 791 wherein X is T;
- (iv) nucleotide 1067 wherein X is A;
- (v) nucleotide 1337 wherein X is A;
- (vi) nucleotide 1997 wherein X is C;
- (vii) wherein G is inserted after nucleotide 2100;
- (viii) nucleotide 2582 wherein X is G;
- (ix) nucleotide 2617 wherein X is T;
- (x) nucleotide 2652 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~45.61~~⁶¹ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO: 5, the probe comprising at least one of:

- (a) nucleotide 431 wherein X is G;
- (b) nucleotide 441 wherein X is G;
- (c) nucleotide 498 wherein X is T;
- (d) nucleotide 579 wherein X is C;
- (e) nucleotide 599 wherein X is C;

or the complement thereof.

~~46.62~~⁶¹ The isolated nucleic acid probe of claim ~~45~~⁶¹ comprising at least two of:

- (a) nucleotide 431 wherein X is G;
- (b) nucleotide 441 wherein X is G;
- (c) nucleotide 498 wherein X is T;
- (d) nucleotide 579 wherein X is C;
- (e) nucleotide 599 wherein X is C;

or the complement thereof.

~~47.63~~⁶¹ The probe of claim ~~45~~⁶¹ comprising no more than 500 contiguous nucleotides of SEQ ID NO: 5.

~~48.64~~⁶¹ The probe of claim ~~45~~⁶¹ comprising no more than 200 contiguous nucleotides of SEQ ID NO: 5.

~~49.65~~⁶¹ The probe of claim ~~45~~⁶¹ comprising no more than 100 contiguous nucleotides of SEQ ID NO: 5.

~~50.66~~⁶¹ The probe of claim ~~45~~⁶¹ comprising no more than 50 contiguous nucleotides of SEQ ID NO: 5.

~~51.67~~⁶¹ The probe claim ~~45~~⁶¹ comprising DNA.

~~52.68~~⁶¹ The probe of claim ~~45~~⁶¹ comprising a peptide nucleic acid.

~~53.69~~⁶¹ The probe of claim ~~45~~⁶¹ further comprising a detectable label.

~~54.70~~⁶¹ The probe of claim ~~53~~⁶¹ wherein the detectable label is a fluorescent label.

~~55.71~~⁶¹ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:5, the probe comprising at least one of:

- (i) nucleotide 431 wherein X is G;
- (ii) nucleotide 441 wherein X is G;
- (iii) nucleotide 498 wherein X is T;
- (iv) nucleotide 579 wherein X is C;
- (v) nucleotide 599 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

A1
~~56.72~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:6, the probe comprising at least one of:

- (a) nucleotide 1066 wherein X is C;
- (b) nucleotide 1136 wherein X is G;
- (c) nucleotide 1497 wherein X is A;

or the complement thereof.

~~57.73~~ The isolated nucleic acid probe of claim ~~56~~⁷² comprising at least two of:

- (a) nucleotide 1066 wherein X is C;
- (b) nucleotide 1136 wherein X is G;
- (c) nucleotide 1497 wherein X is A;

or the complement thereof.

~~58.74~~ The probe of claim ~~56~~⁷² comprising no more than 500 contiguous nucleotides of SEQ ID NO:6.

~~59.75~~ The probe of claim ~~56~~⁷² comprising no more than 200 contiguous nucleotides of SEQ ID NO:6.

~~60.76~~ The probe of claim ~~56~~⁷² comprising no more than 100 contiguous nucleotides of SEQ ID NO:6.

~~61.77~~ The probe of claim ~~56~~⁷² comprising no more than 50 contiguous nucleotides of SEQ ID NO:6.

~~62.78~~ The probe of claim ~~56~~⁷² comprising DNA.

~~63.79~~ The probe of claim ~~56~~⁷² comprising a peptide nucleic acid.

~~64.80~~ The probe of claim ~~56~~⁷² further comprising a detectable label.

~~65.81~~ The probe of claim ~~64~~⁸⁰ wherein the detectable label is a fluorescent label.

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~~66.82~~ A method comprising:
(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:6, the probe comprising at least one of:
(i) nucleotide 1066 wherein X is C;
(ii) nucleotide 1136 wherein X is G;
(iii) nucleotide 1497 wherein X is A;
or the complement thereof; and
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

A1 ~~67.83~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:7, the probe comprising at least one of:
(a) nucleotide 276 wherein X is T;
(b) nucleotide 321 wherein X is C;
(c) nucleotide 452 wherein X is A;
(d) C is inserted after nucleotide 457;
(e) nucleotide 491 wherein X is A;
(f) nucleotide 533 wherein X is C;
(g) nucleotide 624 wherein X is C;
(h) nucleotide 639 wherein X is G;
(i) nucleotide 655 wherein X is C;
or the complement thereof.

~~68.84~~ The isolated nucleic acid probe of claim ~~67~~⁸³ comprising at least two of:
(a) nucleotide 276 wherein X is T;
(b) nucleotide 321 wherein X is C;
(c) nucleotide 452 wherein X is A;
(d) C is inserted after nucleotide 457;
(e) nucleotide 491 wherein X is A;
(f) nucleotide 533 wherein X is C;
(g) nucleotide 624 wherein X is C;
(h) nucleotide 639 wherein X is G;
(i) nucleotide 655 wherein X is C;
or the complement thereof.

~~69.85~~ The probe of claim ~~67~~⁸³ comprising no more than 500 contiguous nucleotides of SEQ ID NO:7.

~~70.86~~ The probe of claim ~~67~~⁸³ comprising no more than 200 contiguous nucleotides of SEQ ID NO:7.

~~71.87~~⁸³ The probe of claim ~~67~~⁸³ comprising no more than 100 contiguous nucleotides of SEQ ID NO:7.

~~72.88~~⁸³ The probe of claim ~~67~~⁸³ comprising no more than 50 contiguous nucleotides of SEQ ID NO:7.

~~73.89~~⁸³ The probe of claim ~~67~~⁸³ comprising DNA.

~~74.90~~⁸³ The probe of claim ~~67~~⁸³ comprising a peptide nucleic acid.

~~75.91~~⁸³ The probe of claim ~~67~~⁸³ further comprising a detectable label.

~~76.92~~⁹¹ The probe of claim ~~75~~⁹¹ wherein the detectable label is a fluorescent label.

~~77.93~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:7, the probe comprising at least one of:

- (i) nucleotide 276 wherein X is T;
- (ii) nucleotide 321 wherein X is C;
- (iii) nucleotide 452 wherein X is A;
- (iv) C is inserted after nucleotide 457;
- (v) nucleotide 491 wherein X is A;
- (vi) nucleotide 533 wherein X is C;
- (vii) nucleotide 624 wherein X is C;
- (viii) nucleotide 639 wherein X is G;
- (ix) nucleotide 655 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~78.94~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:8, the probe comprising at least one of:

- (a) nucleotide 701 wherein X is C;
- (b) nucleotide 716 wherein X is G;
- (c) nucleotide 732 wherein X is C;
- (d) nucleotide 1293 wherein X is G;
- (e) nucleotide 1322 wherein X is G;
- (f) nucleotide 1379 wherein X is C;
- (g) nucleotide 1590 wherein X is T;
- (h) nucleotide 1688 wherein X is G;
- (i) nucleotide 2401 wherein X is G;
- (j) nucleotide 2429 wherein X is A;

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(k) nucleotide 2488 wherein X is T;
(l) nucleotide 2594 wherein X is T;
(m) nucleotide 2618 wherein X is A;
(n) nucleotide 3083 wherein X is A;
(o) nucleotide 3125 wherein X is A;
(p) nucleotide 3212 wherein X is T;
(q) nucleotide 3619 wherein X is A;
(r) nucleotide 3635 wherein X is A;
(s) nucleotide 4256 wherein X is A;
(t) nucleotide 4898 wherein X is G;
(u) nucleotide 5006 wherein X is T;
(v) nucleotide 5062 wherein X is A;
(w) nucleotide 5167 wherein X is A;
(x) nucleotide 11069 wherein X is G;
(y) nucleotide 11238 wherein X is T;
(z) nucleotide 11293 wherein X is G;
(aa) nucleotide 11422 wherein X is C;
(bb) nucleotide 11686 wherein X is T;
(cc) nucleotide 12598 wherein X is C;
(dd) nucleotide 13171 wherein X is C;
(ee) nucleotide 13298 wherein X is A;
(ff) nucleotide 13645 wherein X is C;
(gg) nucleotide 13751 wherein X is A;
(hh) nucleotide 13782 wherein X is C;
(ii) nucleotide 13806 wherein X is C;
(jj) nucleotide 13813 wherein X is C;
(kk) nucleotide 14479 wherein X is G;
(ll) T is inserted after nucleotide 14546;
(mm) nucleotide 14585 wherein X is T;
(nn) nucleotide 14729 wherein X is A;
(oo) nucleotide 14787 wherein X is T;
(pp) nucleotide 14795 wherein X is A;
(qq) nucleotide 15041 wherein X is C;
(rr) nucleotide 15343 wherein X is A;
(ss) nucleotide 15449 wherein X is A;
(tt) nucleotide 15502 wherein X is A;
(uu) nucleotide 15545 wherein X is T;
(vv) nucleotide 15589 wherein X is G;
(ww) nucleotide 15769 wherein X is T;
(xx) nucleotide 15839 wherein X is G;
(yy) nucleotide 16148 wherein X is A;
(zz) nucleotide 16198 wherein X is G; and
(aaa) nucleotide 16202 wherein X is T;

or the complement thereof.

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79. ⁹⁵ The isolated nucleic acid probe of claim ⁹⁴ 78 comprising at least two of:

- A1
- (a) nucleotide 701 wherein X is C;
 - (b) nucleotide 716 wherein X is G;
 - (c) nucleotide 732 wherein X is C;
 - (d) nucleotide 1293 wherein X is G;
 - (e) nucleotide 1322 wherein X is G;
 - (f) nucleotide 1379 wherein X is C;
 - (g) nucleotide 1590 wherein X is T;
 - (h) nucleotide 1688 wherein X is G;
 - (i) nucleotide 2401 wherein X is G;
 - (j) nucleotide 2429 wherein X is A;
 - (k) nucleotide 2488 wherein X is T;
 - (l) nucleotide 2594 wherein X is T;
 - (m) nucleotide 2618 wherein X is A;
 - (n) nucleotide 3083 wherein X is A;
 - (o) nucleotide 3125 wherein X is A;
 - (p) nucleotide 3212 wherein X is T;
 - (q) nucleotide 3619 wherein X is A;
 - (r) nucleotide 3635 wherein X is A;
 - (s) nucleotide 4256 wherein X is A;
 - (t) nucleotide 4898 wherein X is G;
 - (u) nucleotide 5006 wherein X is T;
 - (v) nucleotide 5062 wherein X is A;
 - (w) nucleotide 5167 wherein X is A;
 - (x) nucleotide 11069 wherein X is G;
 - (y) nucleotide 11238 wherein X is T;
 - (z) nucleotide 11293 wherein X is G;
 - (aa) nucleotide 11422 wherein X is C;
 - (bb) nucleotide 11686 wherein X is T;
 - (cc) nucleotide 12598 wherein X is C;
 - (dd) nucleotide 13171 wherein X is C;
 - (ee) nucleotide 13298 wherein X is A;
 - (ff) nucleotide 13645 wherein X is C;
 - (gg) nucleotide 13751 wherein X is A;
 - (hh) nucleotide 13782 wherein X is C;
 - (ii) nucleotide 13806 wherein X is C;
 - (jj) nucleotide 13813 wherein X is C;
 - (kk) nucleotide 14479 wherein X is G;
 - (ll) nucleotide 14546 wherein X is T;
 - (mm) T is inserted after nucleotide 14546;
 - (nn) nucleotide 14729 wherein X is A;
 - (oo) nucleotide 14787 wherein X is T;
 - (pp) nucleotide 14795 wherein X is A;

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(qq) nucleotide 15041 wherein X is C;
(rr) nucleotide 15343 wherein X is A;
(ss) nucleotide 15449 wherein X is A;
(tt) nucleotide 15502 wherein X is A;
(uu) nucleotide 15545 wherein X is T;
(vv) nucleotide 15589 wherein X is G;
(ww) nucleotide 15769 wherein X is T;
(xx) nucleotide 15839 wherein X is G;
(yy) nucleotide 16148 wherein X is A;
(zz) nucleotide 16198 wherein X is G; and
(aaa) nucleotide 16202 wherein X is T;

or the complement thereof.

A1 ~~80.96~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising no more than 500 contiguous nucleotides of SEQ ID NO:8.

~~81.97~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising no more than 200 contiguous nucleotides of SEQ ID NO:8.

~~82.98~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising no more than 100 contiguous nucleotides of SEQ ID NO:8.

~~83.99~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising no more than 50 contiguous nucleotides of SEQ ID NO:8.

~~84.100~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising DNA.

~~85.101~~⁹⁴ The probe of claim ~~78~~⁹⁴ comprising a peptide nucleic acid.

~~86.102~~⁹⁴ The probe of claim ~~78~~⁹⁴ further comprising a detectable label.

~~87.103~~¹⁰² The probe of claim ~~86~~¹⁰² wherein the detectable label is a fluorescent label.

~~88.104~~ A method comprising:
(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:8, the probe comprising at least one of:
(i) nucleotide 701 wherein X is C;
(ii) nucleotide 716 wherein X is G;
(iii) nucleotide 732 wherein X is C;
(iv) nucleotide 1293 wherein X is G;
(v) nucleotide 1322 wherein X is G;
(vi) nucleotide 1379 wherein X is C;

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(vii) nucleotide 1590 wherein X is T;
(viii) nucleotide 1688 wherein X is G;
(ix) nucleotide 2401 wherein X is G;
(x) nucleotide 2429 wherein X is A;
(xi) nucleotide 2488 wherein X is T;
(xii) nucleotide 2594 wherein X is T;
(xiii) nucleotide 2618 wherein X is A;
(xiv) nucleotide 3083 wherein X is A;
(xv) nucleotide 3125 wherein X is A;
(xvi) nucleotide 3212 wherein X is T;
(xvii) nucleotide 3619 wherein X is A;
(xviii) nucleotide 3635 wherein X is A;
(xix) nucleotide 4256 wherein X is A;
(xx) nucleotide 4898 wherein X is G;
(xxi) nucleotide 5006 wherein X is T;
(xxii) nucleotide 5062 wherein X is A;
(xxiii) nucleotide 5167 wherein X is A;
(xxiv) nucleotide 11069 wherein X is G;
(xxv) nucleotide 11238 wherein X is T;
(xxvi) nucleotide 11293 wherein X is G;
(xxvii) nucleotide 11422 wherein X is C;
(xxviii) nucleotide 11686 wherein X is T;
(xxix) nucleotide 12598 wherein X is C;
(xxx) nucleotide 13171 wherein X is C;
(xxxi) nucleotide 13298 wherein X is A;
(xxxii) nucleotide 13645 wherein X is C;
(xxxiii) nucleotide 13751 wherein X is A;
(xxxiv) nucleotide 13782 wherein X is C;
(xxxv) nucleotide 13806 wherein X is C;
(xxxvi) nucleotide 13813 wherein X is C;
(xxxvii) nucleotide 14479 wherein X is G;
(xxxviii) T is inserted after nucleotide 14546;
(xxxix) nucleotide 14585 wherein X is T;
(xl) nucleotide 14729 wherein X is A;
(xli) nucleotide 14787 wherein X is T;
(xlii) nucleotide 14795 wherein X is A;
(xliii) nucleotide 15041 wherein X is C;
(xliv) nucleotide 15343 wherein X is A;
(xlv) nucleotide 15449 wherein X is A;
(xlvi) nucleotide 15502 wherein X is A;
(xlvii) nucleotide 15545 wherein X is T;
(xlviii) nucleotide 15589 wherein X is G;
(xlix) nucleotide 15769 wherein X is T;
(l) nucleotide 15839 wherein X is G;

(li) nucleotide 16148 wherein X is A;
(lii) nucleotide 16198 wherein X is G; and
(liii) nucleotide 16202 wherein X is T
or the complement thereof; and
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

A1
~~89.105~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:9, the probe comprising at least one of:

(a) nucleotide 128 wherein X is A;
(b) nucleotide 189 wherein X is G;
(c) nucleotide 524 wherein X is G;
(d) nucleotide 1399 wherein X is A;
(e) nucleotide 1464 wherein X is A;
(f) nucleotide 1636 wherein X is T;
(g) nucleotide 1738 wherein X is T; and
(h) nucleotide 2259 wherein X is C;
or the complement thereof.

~~90.106~~ The isolated nucleic acid probe of claim ¹⁰⁵~~89~~ comprising at least two of:

(a) nucleotide 128 wherein X is A;
(b) nucleotide 189 wherein X is G;
(c) nucleotide 524 wherein X is G;
(d) nucleotide 1399 wherein X is A;
(e) nucleotide 1464 wherein X is A;
(f) nucleotide 1636 wherein X is T;
(g) nucleotide 1738 wherein X is T; and
(h) nucleotide 2259 wherein X is C;
or the complement thereof.

~~91.107~~ The probe of claim ¹⁰⁵~~89~~ comprising no more than 500 contiguous nucleotides of SEQ ID NO:9.

~~92.108~~ The probe of claim ¹⁰⁵~~89~~ comprising no more than 200 contiguous nucleotides of SEQ ID NO:9.

~~93.109~~ The probe of claim ¹⁰⁵~~89~~ comprising no more than 100 contiguous nucleotides of SEQ ID NO:9.

~~94.110~~ The probe of claim ¹⁰⁵~~89~~ comprising no more than 50 contiguous nucleotides of SEQ ID NO:9.

~~95.111~~ The probe of claim ¹⁰⁵~~89~~ comprising DNA.

~~96.~~¹⁰⁵~~112~~ The probe of claim ~~89~~¹⁰⁵ comprising a peptide nucleic acid.

~~97.~~¹⁰⁵~~113~~ The probe of claim ~~89~~¹⁰⁵ further comprising a detectable label.

~~98.~~¹¹³~~114~~ The probe of claim ~~97~~¹¹³ wherein the detectable label is a fluorescent label.

~~99.~~¹¹⁵~~115~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:

- (i) nucleotide 128 wherein X is A;
(ii) nucleotide 189 wherein X is G;
(iii) nucleotide 524 wherein X is G;
(iv) nucleotide 1399 wherein X is A;
(v) nucleotide 1464 wherein X is A;
(vi) nucleotide 1636 wherein X is T;
(vii) nucleotide 1738 wherein X is T; and
(viii) nucleotide 2259 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~100.~~¹¹⁶~~116~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:

- (a) nucleotide 183 wherein X is A;
(b) nucleotide 483 wherein X is T;
(c) nucleotide 601 wherein X is C; and
(d) nucleotide 1299 wherein X is A;

or the complement thereof.

~~101.~~¹¹⁶~~117~~ The isolated nucleic acid probe of claim ~~100~~¹¹⁶ comprising at least two of:

- (a) nucleotide 183 wherein X is A;
(b) nucleotide 483 wherein X is T;
(c) nucleotide 601 wherein X is C; and
(d) nucleotide 1299 wherein X is A;

or the complement thereof.

~~102.~~¹¹⁶~~118~~ The probe of claim ~~100~~¹¹⁶ comprising no more than 500 contiguous nucleotides of SEQ ID NO:10.

~~103.~~¹¹⁶~~119~~ The probe of claim ~~100~~¹¹⁶ comprising no more than 200 contiguous nucleotides of SEQ ID NO:10.

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~~104.~~¹²⁶ The probe of claim ~~100~~¹¹⁶ comprising no more than 100 contiguous nucleotides of SEQ ID NO:10.

~~105.~~¹²¹ The probe of claim ~~100~~¹¹⁶ comprising no more than 50 contiguous nucleotides of SEQ ID NO:10.

~~106.~~¹²² The probe of claim ~~100~~¹¹⁶ comprising DNA.

~~107.~~¹²³ The probe of claim ~~100~~¹¹⁶ comprising a peptide nucleic acid.

~~108.~~¹²⁴ The probe of claim ~~100~~¹¹⁶ further comprising a detectable label.

~~109.~~¹²⁵ The probe of claim ~~108~~¹²⁴ wherein the detectable label is a fluorescent label.

~~110.~~¹²⁶ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:10, the probe comprising at least one of:
- (i) nucleotide 183 wherein X is A;
 - (ii) nucleotide 483 wherein X is T;
 - (iii) nucleotide 601 wherein X is C;
 - (iv) nucleotide 1299 wherein X is A;
- or the complement thereof; and
- (c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~111.~~¹²⁷ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:11, the probe comprising at least one of:

- (a) nucleotide 124 wherein X is T;
- (b) nucleotide 439 wherein X is A;
- (c) CT is inserted after nucleotide 1044;
- (d) nucleotide 1331 wherein X is A;
- (e) nucleotide 1977 wherein X is A;
- (f) nucleotide 2149 wherein X is A;
- (g) nucleotide 2467 wherein X is G;
- (h) nucleotide 2634 wherein X is G;
- (i) nucleotide 2975 wherein X is A;
- (j) nucleotide 3116 wherein X is T;
- (k) nucleotide 3255 wherein X is C;
- (l) nucleotide 3344 wherein X is C;
- (m) nucleotide 4051 wherein X is A;
- (n) nucleotide 4782 wherein X is A;
- (o) nucleotide 5022 wherein X is C;

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- (p) nucleotide 5266 wherein X is A;
- (q) nucleotide 5285 wherein X is G;
- (r) nucleotide 5438 wherein X is A;
- (s) nucleotide 5482 wherein X is T;
- (t) nucleotide 5629 wherein X is A;
- (u) nucleotide 5648 wherein X is T; and
- (v) nucleotide 5731 wherein X is A;

or the complement thereof.

~~112~~¹²⁸ The isolated nucleic acid probe of claim ~~111~~¹²⁷ comprising at least two of:

- (a) nucleotide 124 wherein X is T;
- (b) nucleotide 439 wherein X is A;
- (c) CT is inserted after nucleotide 1044;
- (d) nucleotide 1331 wherein X is A;
- (e) nucleotide 1977 wherein X is A;
- (f) nucleotide 2149 wherein X is A;
- (g) nucleotide 2467 wherein X is G;
- (h) nucleotide 2634 wherein X is G;
- (i) nucleotide 2975 wherein X is A;
- (j) nucleotide 3116 wherein X is T;
- (k) nucleotide 3255 wherein X is C;
- (l) nucleotide 3344 wherein X is C;
- (m) nucleotide 4051 wherein X is A;
- (n) nucleotide 4782 wherein X is A;
- (o) nucleotide 5022 wherein X is C;
- (p) nucleotide 5266 wherein X is A;
- (q) nucleotide 5285 wherein X is G;
- (r) nucleotide 5438 wherein X is A;
- (s) nucleotide 5482 wherein X is T;
- (t) nucleotide 5629 wherein X is A;
- (u) nucleotide 5648 wherein X is T; and
- (v) nucleotide 5731 wherein X is A;

or the complement thereof.

~~113~~¹²⁹ The probe of claim ~~111~~¹²⁷ comprising no more than 500 contiguous nucleotides of SEQ ID NO:11.

~~114~~¹³⁰ The probe of claim ~~111~~¹²⁷ comprising no more than 200 contiguous nucleotides of SEQ ID NO:11.

~~115~~¹³¹ The probe of claim ~~111~~¹²⁷ comprising no more than 100 contiguous nucleotides of SEQ ID NO:11.

~~116.~~¹³² The probe of claim ~~111~~¹²⁷ comprising no more than 50 contiguous nucleotides of SEQ ID NO:11.

~~117.~~¹³³ The probe of claim ~~111~~¹²⁷ comprising DNA.

~~118.~~¹³⁴ The probe of claim ~~111~~¹²⁷ comprising a peptide nucleic acid.

~~119.~~¹³⁵ The probe of claim ~~111~~¹²⁷ further comprising a detectable label.

~~120.~~¹³⁶ The probe of claim ~~119~~¹³⁵ wherein the detectable label is a fluorescent label.

~~121.~~¹³⁷ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (i) nucleotide 124 wherein X is T;
- (ii) nucleotide 439 wherein X is A;
- (iii) CT is inserted after nucleotide 1044;
- (iv) nucleotide 1331 wherein X is A;
- (v) nucleotide 1977 wherein X is A;
- (vi) nucleotide 2149 wherein X is A;
- (vii) nucleotide 2467 wherein X is G;
- (viii) nucleotide 2634 wherein X is G;
- (ix) nucleotide 2975 wherein X is A;
- (x) nucleotide 3116 wherein X is T;
- (xi) nucleotide 3255 wherein X is C;
- (xii) nucleotide 3344 wherein X is C;
- (xiii) nucleotide 4051 wherein X is A;
- (xiv) nucleotide 4782 wherein X is A;
- (xv) nucleotide 5022 wherein X is C;
- (xvi) nucleotide 5266 wherein X is A;
- (xvii) nucleotide 5285 wherein X is G;
- (xviii) nucleotide 5438 wherein X is A;
- (xix) nucleotide 5482 wherein X is T;
- (xx) nucleotide 5629 wherein X is A;
- (xxi) nucleotide 5648 wherein X is T; and
- (xxii) nucleotide 5731 wherein X is A;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

¹³⁸
~~122.~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof.

¹³⁹
~~123.~~ The isolated nucleic acid probe of claim ¹³⁸122 comprising at least two of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof.

¹⁴⁰
~~124.~~ The probe of claim ¹³⁸122 comprising no more than 500 contiguous nucleotides of SEQ ID NO:12.

¹⁴¹
~~125.~~ The probe of claim ¹³⁸122 comprising no more than 200 contiguous nucleotides of SEQ ID NO:12.

¹⁴²
~~126.~~ The probe of claim ¹³⁸122 comprising no more than 100 contiguous nucleotides of SEQ ID NO:12.

¹⁴³
~~127.~~ The probe of claim ¹³⁸122 comprising no more than 50 contiguous nucleotides of SEQ ID NO:12.

¹⁴⁴
~~128.~~ The probe of claim ¹³⁸122 comprising DNA.

¹⁴⁵
~~129.~~ The probe of claim ¹³⁸122 comprising a peptide nucleic acid.

¹⁴⁶
~~130.~~ The probe of claim ¹³⁸122 further comprising a detectable label.

¹⁴⁷
~~131.~~ The probe of claim ¹⁴⁶130 wherein the detectable label is a fluorescent label.

¹⁴⁸
~~132.~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:12, the probe comprising at least one of:

- (a) nucleotide 803 wherein X is T;
- (b) nucleotide 1747 wherein X is T; and
- (c) nucleotide 1900 wherein X is C;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

~~133.~~¹⁴⁹ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:13, the probe comprising at least one of:

- (a) nucleotide 1424 wherein X is A;
 - (b) nucleotide 1649 wherein X is A; and
 - (c) nucleotide 2554 wherein X is G;
- or the complement thereof.

~~134.~~¹⁵⁰ The isolated nucleic acid probe of claim ~~133~~¹⁴⁹ comprising at least two of:

- (a) nucleotide 1424 wherein X is A;
- (b) nucleotide 1649 wherein X is A; and
- (c) nucleotide 2554 wherein X is G;

or the complement thereof.

~~135.~~¹⁵¹ The probe of claim ~~133~~¹⁴⁹ comprising no more than 500 contiguous nucleotides of SEQ ID NO:13.

~~136.~~¹⁵² The probe of claim ~~133~~¹⁴⁹ comprising no more than 200 contiguous nucleotides of SEQ ID NO:13.

~~137.~~¹⁵³ The probe of claim ~~133~~¹⁴⁹ comprising no more than 100 contiguous nucleotides of SEQ ID NO:13.

~~138.~~¹⁵⁴ The probe of claim ~~133~~¹⁴⁹ comprising no more than 50 contiguous nucleotides of SEQ ID NO:13.

~~139.~~¹⁵⁵ The probe of claim ~~133~~¹⁴⁹ comprising DNA.

~~140.~~¹⁵⁶ The probe of claim ~~133~~¹⁴⁹ comprising a peptide nucleic acid.

~~141.~~¹⁵⁷ The probe of claim ~~133~~¹⁴⁹ further comprising a detectable label.

~~142.~~¹⁵⁸ The probe of claim ~~141~~¹⁵⁷ wherein the detectable label is a fluorescent label.

~~143.~~¹⁵⁹ A method comprising:

- (a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;
- (b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:13, the probe comprising at least one of:
 - (a) nucleotide 1424 wherein X is A;
 - (b) nucleotide 1649 wherein X is A; and
 - (c) nucleotide 2554 wherein X is G;

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or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

144.¹⁶⁰ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:14, the probe comprising at least one of:

- (a) nucleotide 263 wherein X is G;
- (b) nucleotide 266 wherein X is T;
- (c) nucleotide 527 wherein X is G;
- (d) nucleotide 1037 wherein X is G;
- (e) nucleotide 1139 wherein X is A;
- (f) nucleotide 1217 wherein X is T;
- (g) nucleotide 1647 wherein X is T;
- (h) nucleotide 1955 wherein X is A;
- (i) nucleotide 2017 wherein X is A;
- (j) nucleotide 2037 wherein X is A;
- (k) nucleotide 2189 wherein X is G;
- (l) nucleotide 2282 wherein X is T; and
- (m) nucleotide 2309 wherein X is G;

or the complement thereof.

145.¹⁶¹ The isolated nucleic acid probe of claim ¹⁶⁰144 comprising at least two of:

- (a) nucleotide 263 wherein X is G;
- (b) nucleotide 266 wherein X is T;
- (c) nucleotide 527 wherein X is G;
- (d) nucleotide 1037 wherein X is G;
- (e) nucleotide 1139 wherein X is A;
- (f) nucleotide 1217 wherein X is T;
- (g) nucleotide 1647 wherein X is T;
- (h) nucleotide 1955 wherein X is A;
- (i) nucleotide 2017 wherein X is A;
- (j) nucleotide 2037 wherein X is A;
- (k) nucleotide 2189 wherein X is G;
- (l) nucleotide 2282 wherein X is T; and
- (m) nucleotide 2309 wherein X is G;

or the complement thereof.

146.¹⁶² The probe of claim ¹⁶⁶144 comprising no more than 500 contiguous nucleotides of SEQ ID NO:14.

147.¹⁶³ The probe of claim ¹⁶⁰144 comprising no more than 200 contiguous nucleotides of SEQ ID NO:14.

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~~148~~¹⁶⁴ The probe of claim ~~144~~¹⁶⁰ comprising no more than 100 contiguous nucleotides of SEQ ID NO:14.

~~149~~¹⁶⁵ The probe of claim ~~144~~¹⁶⁰ comprising no more than 50 contiguous nucleotides of SEQ ID NO:14.

~~150~~¹⁶⁶ The probe claim ~~144~~¹⁶⁰ comprising DNA.

~~151~~¹⁶⁷ The probe of claim ~~144~~¹⁶⁰ comprising a peptide nucleic acid.

~~152~~¹⁶⁸ The probe of claim ~~144~~¹⁶⁰ further comprising a detectable label.

~~153~~¹⁶⁹ The probe of claim ~~152~~¹⁶⁸ wherein the detectable label is a fluorescent label.

~~154~~¹⁷⁰ A method comprising

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:14, the probe comprising at least one of:

- (i) nucleotide 263 wherein X is G;
- (ii) nucleotide 266 wherein X is T;
- (iii) nucleotide 527 wherein X is G;
- (iv) nucleotide 1037 wherein X is G;
- (v) nucleotide 1139 wherein X is A;
- (vi) nucleotide 1217 wherein X is T;
- (vii) nucleotide 1647 wherein X is T;
- (viii) nucleotide 1955 wherein X is A;
- (ix) nucleotide 2017 wherein X is A;
- (x) nucleotide 2037 wherein X is A;
- (xi) nucleotide 2189 wherein X is G;
- (xii) nucleotide 2282 wherein X is T; and
- (xiii) nucleotide 2309 wherein X is G;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

Sub B3
A1
~~155.~~¹⁷¹ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least one of:

- (a) nucleotide 120 wherein X is C;
- (b) nucleotide 464 wherein X is G;
- (c) nucleotide 519 wherein X is T;
- (d) nucleotide 668 wherein X is T;
- (e) nucleotide 1059 wherein X is C;
- (f) nucleotide 1289 wherein X is A;
- (g) nucleotide 1308 wherein X is C;
- (h) nucleotide 1784 wherein X is A;

or the complement thereof.

~~156.~~¹⁷² The isolated nucleic acid probe of claim ~~155~~¹⁷¹ comprising at least two of:

- (a) nucleotide 120 wherein X is C;
- (b) nucleotide 464 wherein X is G;
- (c) nucleotide 519 wherein X is T;
- (d) nucleotide 668 wherein X is T;
- (e) nucleotide 1059 wherein X is C;
- (f) nucleotide 1289 wherein X is A;
- (g) nucleotide 1308 wherein X is C;
- (h) nucleotide 1784 wherein X is A;

or the complement thereof.

~~157.~~¹⁷³ The probe of claim ~~155~~¹⁷¹ comprising no more than 500 contiguous nucleotides of SEQ ID NO:15.

~~158.~~¹⁷⁴ The probe of claim ~~155~~¹⁷¹ comprising no more than 200 contiguous nucleotides of SEQ ID NO:15.

~~159.~~¹⁷⁵ The probe of claim ~~155~~¹⁷¹ comprising no more than 100 contiguous nucleotides of SEQ ID NO:15.

~~160.~~¹⁷⁶ The probe of claim ~~155~~¹⁷¹ comprising no more than 50 contiguous nucleotides of SEQ ID NO:15.

~~161.~~¹⁷⁸ The probe claim ~~155~~¹⁷¹ comprising DNA.

~~162.~~¹⁷⁹ The probe of claim ~~155~~¹⁷¹ comprising a peptide nucleic acid.

~~163.~~¹⁸⁰ The probe of claim ~~155~~¹⁷¹ further comprising a detectable label.

~~164.~~¹⁸¹ The probe of claim ~~163~~¹⁸⁰ wherein the detectable label is a fluorescent label.

Sub B3
A1

¹⁸²
~~165.~~ A method comprising:

(a) providing a sample comprising nucleic acid molecules present in a biological sample obtained from a patient;

(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:15, the probe comprising at least one of:

- A1
- (i) nucleotide 120 wherein X is C;
 - (ii) nucleotide 464 wherein X is G;
 - (iii) nucleotide 519 wherein X is T;
 - (iv) nucleotide 668 wherein X is T;
 - (v) nucleotide 1059 wherein X is C;
 - (vi) nucleotide 1289 wherein X is A;
 - (vii) nucleotide 1308 wherein X is C;
 - (viii) nucleotide 1784 wherein X is A;

or the complement thereof; and

(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the probe.

¹⁸³
~~166.~~ An isolated nucleic acid probe comprising at least 15 contiguous nucleotides of the nucleotide sequence of SEQ ID NO:16, the probe comprising at least one of:

- (a) nucleotide 575 wherein X is C;
- (b) nucleotide 648 wherein X is C;
- (c) nucleotide 771 wherein X is C;
- (d) nucleotide 883 wherein X is A;
- (e) C is inserted after nucleotide 941; and
- (f) nucleotide 1051 wherein X is C;

or the complement thereof.

¹⁸⁴
~~167.~~ The isolated nucleic acid probe of claim ¹⁸³~~166~~ comprising at least two of:

- (a) nucleotide 575 wherein X is C;
- (b) nucleotide 648 wherein X is C;
- (c) nucleotide 771 wherein X is C;
- (d) nucleotide 883 wherein X is A;
- (e) C is inserted after nucleotide 941; and
- (f) nucleotide 1051 wherein X is C;

or the complement thereof.

¹⁸⁵
~~168.~~ The probe of claim ¹⁸³~~166~~ comprising no more than 500 contiguous nucleotides of SEQ ID NO:16.

¹⁸⁶
~~169.~~ The probe of claim ¹⁸³~~166~~ comprising no more than 200 contiguous nucleotides of SEQ ID NO:16.

¹⁸⁷
~~170.~~ The probe of claim ¹⁸³~~166~~ comprising no more than 100 contiguous nucleotides of SEQ ID NO:16.

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A1
¹⁸⁸
~~171.~~ The probe of claim ¹⁸³166 comprising no more than 50 contiguous nucleotides of
SEQ ID NO:16.

¹⁸⁹
~~172.~~ The probe of claim ¹⁸³166 comprising DNA.

¹⁹⁰
~~173.~~ The probe of claim ¹⁸³166 comprising a peptide nucleic acid.

¹⁹¹
~~174.~~ The probe of claim ¹⁸³166 further comprising a detectable label.

¹⁹²
~~175.~~ The probe of claim ¹⁹¹174 wherein the detectable label is a fluorescent label.

¹⁹³
~~176.~~ A method comprising:
(a) providing a sample comprising nucleic acid molecules present in a biological
sample obtained from a patient;
(b) contacting the sample with a probe comprising at least 15 contiguous nucleotides
of the nucleotide sequence of SEQ ID NO:16, the probe comprising at least one of:
(i) nucleotide 575 wherein X is C;
(ii) nucleotide 648 wherein X is C;
(iii) nucleotide 771 wherein X is C;
(iv) nucleotide 883 wherein X is A;
(v) C is inserted after nucleotide 941; and
(vi) nucleotide 1051 wherein X is C;
or the complement thereof; and
(c) determining if the sample comprises a nucleic acid molecule that hybridizes to the
probe.--